

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN

ALINA BOYDEN and
SHANNON ANDREWS,

Plaintiffs,

v.

Case No. 17-CV-264

STATE OF WISCONSIN DEPARTMENT
OF EMPLOYEE TRUST FUNDS, et al.,

Defendants.

**EXPERT REPORT OF DAVID V. WILLIAMS
SUBMITTED ON BEHALF OF THE STATE DEFENDANTS**

EXPERT REPORT

Gender Reassignment Benefits

19 April 2018

David V. Williams, Consultant



EXPERT REPORT

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MILLIMAN EXPERT REPORT

I have reviewed the civil rights complaint for sex discrimination filed in United States District Court, W.D. Wisconsin No.: 17-cv-264; Alina Boyden, and Shannon Andrews Plaintiffs vs State of Wisconsin Department of Employee Trust Funds, State of Wisconsin Group Insurance Board, Robert Conlin (Secretary of the Department of Employee Trust Funds), Board of Regents of the University of Wisconsin System, Raymond Cross (President of the UW System), Rebecca Blank (Chancellor of UW – Madison), Robert Golden (Dean of the UW School of Medicine and Public Health), and Dean Health Plan, defendants. This report contains my opinions with respect to healthcare costs for surgical procedures, services and supplies related to surgery and hormone therapy associated with gender reassignment.

Professional Qualifications

I am a Healthcare Consultant working in the Hartford, Connecticut office of Milliman, the largest independent actuarial consulting firm in the United States with offices worldwide. I have 30 years' experience in areas related to medical economics including director positions at two health plans. I hold a degree in Economics from Brigham Young University and have completed graduate course work in statistics, data mining, public health, and software development.

My employment as a Milliman Healthcare Consultant began in 1997. Milliman Healthcare Consultants consist of actuaries, medical professionals, information technology experts, and other professionals who serve clients that include health plans, insurance companies, healthcare providers, employers, governments, pharmaceutical companies, medical device manufacturers and others. Milliman qualifies consultants through a rigorous evaluation process that designates a consultant as an approved professional, which means the consultant is approved to work directly with clients, and/or has signature authority, which means the consultant may sign reports and approve other professional's work products: I am both an approved professional and have signature authority. My professional responsibilities include provider contracting, pricing, insurance premium rate-setting, return on investment analysis for wellness programs and medical devices, value-based insurance design, forecasting and budgeting of health plans, and medical claims data warehousing.

As a result of my technical experience in medical economics, benefit pricing, and data analysis, I have developed an understanding of benefit pricing techniques and approaches used in the healthcare industry.

I have previously serviced, and continue to work as an expert witness for Reasonable Fee Methodologies, particularly for fees paid by automobile related medical claims where there is no contract between the insurer and provider of care. I have developed an understanding of medical provider billing patterns across the healthcare industry.

The opinions set forth in this report are based on my education, training and experience including my knowledge of medical insurance, benefit design and benefit pricing as commonly used by employers in the U.S. market.

My practice is being compensated \$390 per hour for my services as an expert witness. I may use charts or tables attached to or included in the body of this report as demonstrative exhibits if I testify in this matter. I understand that the parties may obtain further information relating to the matters addressed in this report and that I may be asked to review further information. I reserve

MILLIMAN EXPERT REPORT

the right to review, modify, or expand upon my opinions based on any further information provided to me. I may also develop additional charts or other exhibits to use in my testimony.

Publications

Milliman Reasonable Fee Methodology on behalf of United Services Automobile Association (USAA), 2012

Analysis of Medical Bill Audit Services prepared on behalf of United Services Automobile Association (USAA), June 21, 2004

Frykberg, RG., Williams DV., Negative-Pressure Wound Therapy and Diabetic Foot Amputations: A retrospective study of Payer Claims Data. J. Am Podiatr Med Assoc. Sept/Oct 97(5)2008, P. 351-9.

Prior Expert Litigation Work

Expert Report: 2012-02016-PAB-MJW; Lindsey Parks, representative of a class of injured persons insured with USAA, plaintiff, vs. USAA and AUTO INJURY SOLUTIONS, (AIS), defendants.

Deposition: MySpine, PS Plaintiff v USAA Casualty Insurance Company, et al. Defendant, Civil Action No. C12-1973RAJ

Summary of Opinions

1. Examining retrospective claims data is the preferred starting point for pricing healthcare benefits for procedures, services, and supplies related to surgery and hormones therapy associated with gender reassignment. For purposes of this analysis, I used retrospective claims data from January 1, 2016 through December 31, 2016, from the Truven MarketScan® commercial research dataset.
2. In a population of 20,037,382 persons who likely had health insurance coverage for treatment associated with gender dysphoria, I identified 8200 persons, or 0.041% of the population, who had healthcare claims for treatments associated with gender dysphoria.
3. These real world data show a wide range of costs associated with gender dysphoria treatments among patients—from \$0 to \$311,000. The average cost of treatment per patient with gender dysphoria-related treatment is \$2,974. Using the same data, the average real world costs for persons who undergo gender reassignment surgery is \$21,302.
4. Because the real world data is only recently available and is limited to one year's claims experience, I blended the results with the cost information from Segal's January 23, 2017, report to Lisa Ellinger of the Wisconsin Department of Employee Trust Funds to arrive at an average cost per individual for individuals who had gender dysphoria-related surgical treatment to be \$35,000.
5. Given the relatively small proportion of members obtaining gender dysphoria treatments in the 2016 dataset and the widely varied costs associated with those treatments, I would expect volatile pricing for gender reassignment benefits from year to year. Therefore, it is fiscally prudent to add a risk margin to the final calculated benefit to account for the volatility in expected cost.
6. In my professional opinion, adding a risk margin of 50% for both the expected utilization of services and the average cost per person would be a reasonable way to price this risk margin. This results in total expected yearly cost of roughly \$301,600 and a per-member per-month ("PMPM") cost of \$0.15.

Group Benefit Pricing Approach

Insurers typically price health plan benefits using historical data that includes an insured population and their historical medical claims. Health plans calculate the expected premium they charge to fully insured employers using these basic steps. Self-insured employers follow a similar process when setting budgets for health care benefit expenditures. In the absence of historical claims data, other published sources are sought.

Regardless of who takes the risk, new health plan benefits impose a cost that the employer pays, either through an increased premium that reflects the health plans' increased claims risk (for fully-insured employers) or through medical claims expenses directly imposed on the employer (for self-insured employers).

The following steps are used to estimate the cost of a benefit¹:

1. Define the benefit by stating what services can be included and what services are excluded.
2. Gather enrollment data, also known as exposure data. This would be the number of covered employees and their dependents for an employer.
3. Calculate the average cost of the benefit, per patient, using historical base claim data for the covered services.
4. Estimate the number of the relevant healthcare services using a) how many individuals have the medical disorder at issue (here, gender dysphoria); b) how many of these individuals might seek covered treatments (here, procedures, services, and supplies related to surgery and sex hormones associated with gender reassignment); and c) for individuals who seek that treatment, the average cost of the treatment.
5. Add a reasonable risk margin based on uncertainties associated with the number of members who will seek the relevant treatments and the expected costs of those treatments.

Define the Benefit

The 2017 and 2018 Uniform Benefits for Wisconsin state employees who receive health care coverage through their employment with the State contains the following coverage exclusion (hereafter, the "Exclusion"):

"Surgical Services: Procedures, services, and supplies related to surgery and sex hormones associated with gender reassignment."

I used a broad definition of gender reassignment surgery for this analysis that includes individuals with a diagnosis of gender dysphoria and services that may be related to gender reassignment surgery, both in preparation for surgery or post-surgical treatment. The following

¹ For a more detailed description, see Group Insurance Chapter 33.

describes the basis for identifying, in the historical medical claims database² used here, individuals who submitted relevant claims.

Because the medical claims database used in this analysis contains claims associated with specific procedures, services, and supplies, I must determine which procedures, services, and supplies fall under the coverage exclusion described above. To do so, I reviewed benefit descriptions and medical policies for several health plans including:

- WPS Health Insurance Medical Affairs Policy. Service: Treatment of Gender Dysphoria. PUM 250-0039-1706. Medical Policy Committee approval 06/16/17; Effective Date: 08/21/17; Prior Authorization Needed: Yes.
- Blue Cross Blue Shield of Massachusetts: Medical Policy Transgender Services; Policy Number 189 updated effective 12/2017.
- Dean HealthPlan: Sex transformation Surgery (market-based) MP9465; October 31, 2016 Published/Effective 01/01/2017.
- Dean HealthPlan: Sex Transformation Surgery (standard) MP9469; Originated October 31, 2016; Revised April 19, 2017; Published/Effective 05/01/2017.

I used the Blue Cross Blue Shield of Massachusetts (“BCBSMA”) Medical Policy for selecting specific services related to surgery. The BCBSMA policy includes the most specific coding for gender reassignment surgical services of the policies I reviewed and it is consistent in its general descriptions with the WPS and Dean medical policy descriptions. The procedures listed on BCBSMA medical policy refer to those items that are subject to prior authorization, and when billed, the claim must include a diagnosis code associated with gender dysphoria.³

But the BCBSMA medical policy also indicates that other coded procedures may also relate to gender dysphoria treatments; when referring to the listed gender dysphoria codes, it states that “[t]he following codes are included below for information purposes only; this is not an all - inclusive list.” Likewise, the WPS medical policy states:

“Unless otherwise specified in the health plan, if a plan covers treatment for gender dysphoria, medically necessary services may include diagnostic evaluation, assessment, and treatment planning; psychotherapy; cross-sex hormone therapy; puberty suppressing medications; laboratory testing to monitor the safety of hormone therapy; and certain surgical treatments as listed in the Indications of Coverage section below, the Omnibus Pharmacy Policy for Treatments Reviewed by Medical Affairs, and Specialty Drug guidelines (Diplomat)”

To capture all surgically related services as described in these medical policies, including those not specified with lists of procedure codes, I have 1) created a “surgical bundle”, and 2) listed other related services in the ‘other’ category.

As for the first described method, the combination of surgical procedures listed in the policy and the associated medically necessary services may be combined to form a surgical bundle. For purposes of this report, I define a surgical bundle as all related services incurred 7 days prior to

² 2016 Truven Health MarketScan® Publication and Trademark Guidelines, commercial database. These data contain inpatient, outpatient and pharmacy claims and enrollment from large U.S. employers and health plans. (Hereafter, the “Database.”)

³ These codes include ICD-10 codes F64.0 – F64.9 (DSM-5 codes 302.6 and 302.85).

the surgical procedure and 60 days after the medical procedure. CMS uses a similar method to calculate costs associated with a surgical procedure.⁴

As for the second described method, the “other” category includes services such as lab tests and office visits related to the surgical procedures and treatment for hormonal therapy. This category also captures surgical procedures not otherwise specifically listed in the BCBSMA medial policy.

The Exclusion also specifically applies to “sex hormones associated with gender reassignment.”⁵ I identify hormone therapy related to gender reassignment surgery by first identifying individuals with a gender dysphoria diagnosis, and then querying the pharmacy table for their associated prescriptions of the following therapeutic classes⁶ of drugs:⁷

- 165: Hormones and Synthetics Substitutes. NEC.
- 167: Androgens and Combinations. NEC
- 170: Estrogens and Combinations. NEC
- 177: Progestins, NEC
- 246: Gonadotrop Related Hormone Antagonist
- 262: Hormone-Modifying Therapy

Gather Enrollment, or Exposure Data

The Database was queried to find 8,200 de-identified individuals with a gender dysphoria diagnosis, to which I will refer to as the “Study Population.”

The next step is to determine the total members covered by relevant group health insurance plans that provide the defined benefit at issue. Because this analysis is meant to calculate the cost incurred by group health insurance plans that cover procedures, services, and supplies related to surgery and sex hormones associated with gender reassignment, members of plans that do not cover these treatments should be excluded from the total member population. Some individuals in the Database were presumably covered by plans that do not provide benefits for these treatments. However, the Database does not identify how many, if any, of the health plans or large employers exclude these benefits from their plan.

Therefore, I assume that if an individual’s claim was paid that included a gender dysphoria diagnosis, then that individual was covered by a plan that provides benefits for gender dysphoria treatments. Using a data field that allows me to calculate the number of all members of plans that presumably provide these benefits, I summed the enrollment for plans that included at least one individual in the Study Population; this resulted in a total population of 20,037,382.

⁴ Available at <https://innovation.cms.gov/initiatives/Bundled-Payments/learning-area.html> (last accessed April 19, 2018).

⁵ I understand, however, that the Exclusion is not applied to claims for sex hormones when those hormones are not associated with gender reassignment surgery.

⁶ Based on the AHFS Pharmacologic-Therapeutic Classification System as supplied by MarketScan.

⁷ These correspond to the WPATH regimens at pp. 47-50.

The percentage of individuals who were identified in The Database as having sought medical treatment and having a diagnosis related to gender dysphoria is then:

$$8,200 / 20,037,382 = 0.041\%$$

The Study Population ages range from 8 to 65 with a median of 23 and an average of 36.8.

29% of individuals in The Study Population were under age 18.

Estimate Average Cost

Costs described here are the amounts allowed by contract between insurers and providers. I have included inpatient costs, outpatient costs and pharmacy costs in this estimate.

Selecting all 8,200 members with a gender dysphoria diagnosis yields a average cost of \$2,974 per member with a gender dysphoria diagnosis and a median of \$527; actual per-member costs for those with gender dysphoria range from \$0.00 to \$311,000.

TABLE 1A⁸
SUMMARY OF COSTS OF STANDARD POPULATION BY CATEGORY

	Individuals	Total Cost	Cost per Person
Counseling	4,519	\$ 7,836,633	\$ 1,734
Hormone Therapy	4,489	\$ 2,947,095	\$ 657
Reassignment Surgery	469	\$ 7,257,523	\$ 15,474
Other	6,973	\$ 6,349,588	\$ 911
Total	8,200	\$ 24,390,839	\$ 2,974

The resulting PMPM cost is calculated as the percentage of the population who are likely to receive health care services times the average cost of the service provided divided by twelve months, or $8,200/20,037,282 \times \$2,974 / 12 = \$0.10$

The data lacks sufficient detail to determine which patients who have had counseling and hormone therapy are planning to or have had gender reassignment surgical procedures. I understand that counseling and hormone therapy would be covered under the Uniform Benefits at issue, if those services are unrelated to gender reassignment surgery. To address this uncertainty, table 1B isolates services for patients who are known to have had a surgical procedure.

⁸ Note that individuals may fall into several categories of services.

TABLE 1B
SUMMARY OF COSTS FOR SURGICAL PATIENTS

	Individuals	Total Cost	Average Cost
Counseling	259	\$ 424,909	\$ 1,641
Hormone Therapy	417	\$ 229,705	\$ 551
Reassignment Surgery	469	\$ 7,318,440	\$ 15,604
Other	458	\$ 2,017,564	\$ 4,405
Total	469	\$ 9,990,618	\$ 21,302

The resulting PMPM (per member per month) cost is calculated as the percentage of the population who are likely to receive health care services times the average cost of the service provided divided by twelve months, or $469/20,037,282 \times 21,302/12 = \0.04

As discussed further below, the “true” PMPM figure based on this data is somewhere between \$0.04 and \$0.10, since each set of calculations does not precisely track the coverage exclusion at issue.

The distribution of costs for surgical patients is as follows:

TABLE 1C
**RANGE OF CLAIMS COSTS FOR SURGICAL PATIENTS
WITH A DIAGNOSIS OF GENDER DYSPHORIA/ GID**

Cost Range	Percent of Individuals	Percent of Dollars
\$ 250	2.3%	0.0%
\$ 1,000	7.0%	0.2%
\$ 2,500	9.2%	0.7%
\$ 5,000	11.5%	2.0%
\$ 15,000	29.0%	13.8%
\$ 30,000	24.1%	24.4%
\$ 75,000	11.3%	24.8%
\$ 150,000	4.3%	21.7%
\$ 300,000	1.1%	9.2%
\$ 500,000	0.2%	3.1%

Further details regarding details of surgical costs and the age of the study population are provided in Tables 2 and 3, below.

TABLE 2
SUMMARY SURGICAL PROCEDURE DETAILS

Surgical Procedure Details	Individuals	Total Costs
MTF	119	\$ 930,822
FTM	349	\$ 2,797,955
Both	123	\$ 478,604
Face	19	\$ 238,436
Other	26	\$ 114,239
Additional 'Bundled' Services		\$ 1,542,811
Facility Costs when Inpatient	39	\$ 1,154,655

TABLE 3
SUMMARY OF STUDY POPULATION BY AGE

Age	Pct of Individuals
<18	29%
18-40	56%
40-65	16%

Estimate the Number of Expected Services

My review of prior studies of gender dysphoria prevalence and expected benefit utilization showed wide differences. These differences combine to produce uncertainty when attempting to calculate the expected healthcare costs for gender reassignment surgery and related services. Below I review prior studies to demonstrate the nature of the uncertainty.

SELF-REPORTING SURVEYS

The Centers for Disease Control and Prevention (CDC) 2014 Behavioral Risk Factor Surveillance System (BRFSS) estimated a prevalence rate of 0.6% as of 2011. The survey asked respondents whether they considered themselves to be transgender, and if yes, whether male-to-female, female-to-male, or gender nonconforming. This estimate was about twice that of a prior estimate of 0.3% from similar 2011 survey.

The DSM-5 manual describes the prevalence of gender dysphoria as follows:

- Natal adult males: 0.005% to 0.014%
- Natal adult females: 0.002% to 0.003%

The DSM-5 also opines that, "since not all adults seeking hormone treatment and surgical reassignment attend specialty clinics, these rates are likely modest underestimates."⁹

⁹ DSM Manual at p. 454.

Zuker (2017) pointed out the inaccuracies of self-reported studies to determine incidence of gender dysphoria. He states:

The “recent studies suggest that the prevalence of a self-reported transgender identity in children, adolescents and adults ranges from 0 to 1.3%, markedly higher than prevalence rates based on clinic-referred samples of adults. The stability of a self-reported transgender identity or a gender identity that departs from the traditional male-female binary among non-clinic based populations remains unknown and requires further study.”

Identifying as gender dysmorphic does not necessarily mean the individual will seek related healthcare services or undergo gender transformation. Olyslager and Conway (2007) provide a useful framework to understand data available in claims based data sources:

P(TS) = the prevalence of transsexualism

P(SH) = the prevalence of transsexual people who have sought help from a healthcare provider

P(HT) = the prevalence of those on hormone therapy

P(ST) = the prevalence of those who have socially transitioned, and

P(SRS) = the prevalence of those who have undergone gender (sex) reassignment surgery

$P(TS) > P(SH) > P(HT) > P(ST) > P(SRS)$ ¹⁰.

A retrospective claims based data analysis for pricing will include individuals who have sought help from a healthcare provider (P(SH)), who are on hormone therapy (P(HT)), and who have undergone gender reassignment surgery (P(SRS)). The data will not identify individuals who have socially transitioned (P(ST)) but not sought help from a healthcare provider nor will it identify individuals who may identify as transgender or nongender conforming but have not sought help from a healthcare provider.

It should also be noted that the epidemiology definitions of prevalence and incidence may not be accurately reflected in a retrospective claims dataset consisting of one year's of incurred claims. There may be individuals who identify as transgender or nongender conforming who are included in the enrollment data who have not sought care from a healthcare provider as part of their health benefit.

CLAIMS BASED ANALYSIS

Naugle (2015) searched a 2012 medical claims dataset which found 0.004% of members had an insurance claim related to gender dysphoria. This analysis likely underestimates the true rate of gender dysphoria-related claims. In recent years many health plans and employers have begun to remove exclusions for gender reassignment benefits, which prompts another look at using health insurance claims data as a reliable source for estimating claims costs.

My analysis presents a more accurate picture of the true rate of gender dysphoria-related claims. This is because the Database used for this study represents an early look at the expected utilization of procedures, services, and supplies related to surgery and hormone therapy associated with gender reassignment and represents the first full year ICD-10

¹⁰ The authors point out that these ratios will be factors of many local conditions.

diagnosis codes are used after being first implemented in October 2015. Again, as calculated above, the 2016 medical claims dataset found 0.041% of members had an insurance claim with a diagnosis of gender dysphoria.

While the annual utilization figure found in The Database remains lower than the prevalence rates from the self-reported sources discussed above, the 0.041% utilization rate comes closer to describing the expected medical utilization for gender reassignment benefits than self-reported prevalence studies.

However, as discussed further below, recent movement to remove gender reassignment benefit exclusions and the relatively low prevalence of gender dysphoria, suggests continued caution when applying utilization estimates for pricing purposes. Accordingly, considerations for addressing the risk of underestimating the utilization rate are discussed below as a potential adjustment to the PMPM figures calculated above.

JANUARY 23, 2017, SEGAL REPORT FROM KIRSTEN R. SCHATTEN, ASA AND KENNETH C. VIEIRA, FSA TO LISA ELLINGER RE: TRANSGENDER COST ESTIMATE

Schatten and Viera state that there is a lack of information and data to provide specific information on estimated cost to the Plan. Schatten and Viera provide an estimated PMPM cost range of \$0.05 to \$0.13. The pricing formula and approach used in this report¹¹ is consistent with pricing principles.

However, there is no mention of the definition of the benefit or any adverse outcomes or comorbidities that may be associated with the procedures. The latter omission could cause the Segal report to underestimate the true costs of providing coverage for gender reassignment surgery.

Summary & Risk Margin Discussion

As stated above, the expected utilization rate for surgical procedures, services and supplies related to surgery and hormone therapy associated with gender reassignment is a relatively small fraction of the total insured population. Additionally, there is a wide variance per individual cost (see table 1C). In an insured population of 167,543, the estimated number of individuals who obtain the more expensive gender reassignment surgery is between 3-4 individuals—although this estimate may vary from year to year.

From the summary above, the expected number of individuals obtaining gender dysphoria-related treatment in a population of roughly 167,500 would be:

¹¹ I independently calculated a PMPM of \$0.084 using the information available in the report.

TABLE 5
EXPECTED NUMBER OF GENDER DYSPHORIC INDIVIDUALS OBTAINING CARE IN A POPULATION OF
167,500

36	Counseling
36	Hormone Therapy
4	Reassignment Surgery
55	Other
65	Total

Individuals have complex health care needs and recommended treatment approaches and health care delivery will vary depending on patient complexity and preferences. Moreover, individuals may experience unforeseen complications resulting from gender reassignment procedures; any resulting complications will add to the costs of care for these particular patients.

Based on the claims analysis presented above, I observed that the expected average cost was for all individuals with a gender dysphoria diagnosis was \$2,974 with ranges from \$0.00 to \$311,000 and a median of \$527. The average cost for those who underwent gender reassignment surgery was \$21,302 per individual.

The implication of this wide range of average costs is that the expected total costs for a population of around 167,500 is highly variable. Considering the range of costs, it is plausible that in any given year, ETF and participating health plans could experience an adverse year of claims experience with more individuals seeking surgery than predicted who have higher than average surgical costs. Likewise, it would only take one individual with a catastrophic claim to significantly raise average and total costs.

Some of the reasons for this variability include:

- 1) Variability in the level of reconstruction: FTM surgical procedures may include mastectomy, male chest construction, hysterectomy and oophorectomy (removal of ovaries), urethraplasty, vaginectomy, scrotoplasty, and/or implantation of prostheses. MTF surgical procedures may include breast augmentation, penectomy, orchietomy, vaginoplasty, clitoroplasty, and vulvoplasty. These procedures may be one in combination (in one surgical episode) or individually over time, and may or may not include the full suite of possible reconstructions.
- 2) Complications: These procedures are not risk free and could result in complications related to surgery or treatment that require further expensive treatment.
- 3) Location: Procedures performed in an ambulatory care setting or surgical center are less expensive than done in an inpatient setting.

For example, it is possible that, in a given year in ETF's population of around 167,500, eight individuals might submit claims for gender reassignment surgery (rather than three to four) at an average cost of \$100,000 (rather than the calculated average cost of around \$21,000). This would result in a total cost of \$800,000 in claims, a six fold increase from the average calculated above. In my professional experience, this would not be an unusual variance, and it therefore it must be acknowledged when pricing the benefit at issue.

I calculated above a range of PMPM costs from \$0.04 to \$0.10 using medical claims data from 2016, depending on the scope of services counted in the calculation. Based on these

calculations, I expect the value to be in-between \$0.04 and \$0.10 and therefore I use a midpoint of \$0.07.

The PMPM calculated above is \$0.07. $\$0.07 \times 167,543 \times 12 = \$140,736$ of expected cost to the Employee Trust Fund which is .01% of total premium based on Segal's report that the Wisconsin Department of Employee Trust Funds expended \$1.3 billion of non-Medicare premiums for 2017.

I observed that the average cost from the Database of those undergoing surgery of \$21,302 is lower than the values presented in the Segal study which were \$41,600 for MTF surgeries and \$64,200 for FTM surgeries.

Confident use of medical claims data for benefit pricing presumes several years of available data. Given that 2016 is the first year that a medical claims database contains sufficient claims for pricing gender reassignment benefits, it is prudent to blend it with other available data such as the pricing sources used in the Segal report.

I blend the average cost from the Database, \$21,302, with the weighted average¹² of Segal's cost estimates ($0.66 \times 41,600 + 0.34 \times 64200 = \$49,284$) by rounding the midpoint to the nearest thousand to obtain a blended cost estimate of \$35,000 for gender reassignment surgery and related services and supplies resulting in a PMPM of \$0.07.

In my professional opinion and given all the factors discussed in this section, adding a risk margin of 50% for both the expected utilization of services and the average cost per person would be a reasonable way to price a risk margin for these services.

The resulting PMPM would be \$0.15 ($\$35,000 \times 1.5 \times .0023\%^{13} \times 1.5 / 12$). The expected yearly cost to ETF and participating health plans with this added contingency would be $\$0.15 \times 12 \times 167,543 = \$301,577$.

This approach would cover most contingencies of high claim costs associated with a gender reassignment benefit, but it would result in excess revenue during an average or below average utilization year. The risk margin would be reviewed and adjusted annually based on the financial position of the plan at the time and additional, future claims data.

Other Considerations

The 2016 study population from the Database used for my analysis has the following limitations:

1. It is possible there was pent up demand, meaning individuals who had not previously had access to transgender benefits through their employer decides to undergo transgender transformation with the first year of the exclusion removal. This would suggest a spike in utilization that would subside over time.

¹² 34% of the individuals who had surgery in the Database were male.

¹³ 469 / 20,0323,282

2. The treatment period is limited to one year, whereas treatment for gender reassignment surgery, including counseling and hormone treatment may be on-going. Therefore long term costs are not yet understood through the claims data.
3. If considering claims costs for surgical bundles that span 60 days, the annual costs and accompanying prevalence are limited to ten months from the first date of the procedure.

Review of other estimates

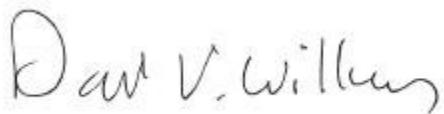
EXPERT WITNESS REPORT OF STEPHANIE BUDGE, PH.D.

I reviewed the Cost of Transition-Related Care section in the Expert Witness Report of Stephanie Budge, Ph.D. found on page 22. The report relies on a cost effectiveness study for insurance companies to cover transition-related care. Padula, et al. (2016). The statistical analysis performed in the Padula study was a Quality of Life Year Cost-Effectiveness analysis using a Markov model based on a transgender discrimination survey, standard utility scores, and costs from disparate sources over different time periods.

These types of studies are not used in the actuarial sciences for benefit pricing purposes. They lack sufficiently detailed information to match the costs with the associated benefit descriptions for a specific time period.

The measured outcome in the Padula study is a Quality Adjusted Life Year at 5 year and 10 year horizons, which are too far out for benefit pricing purposes. The estimated costs are derived from an ad hoc survey¹⁴, and procedures were weighted in an undisclosed fashion by procedure prevalence¹⁵ with a publication reference of 2007. Inputs with attached costs also include measures not included in standard health benefits including cost utilities for items such as job loss, depression, and attempted suicide. None of these study design elements would be used in a current pricing of medical benefits.

Respectfully Submitted



David V. Williams

Date: 19 April 2018

¹⁴ Padula, et al. (2016) at p.100.

¹⁵ Padula, et al. (2016) at p. 96.

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